Claims

1. ~~A DNA molecule encoding~~ alkaline liquefying α-amylase activity.

2. ~~A DNA molecule as defined in Claim 1, which~~ encodes the amino acid sequence described in Sequence No. ~~1~~ 2 or a functional fragment ~~thereof~~.

3. A DNA molecule encoding a protein exhibiting alkaline liquefying α-amylase activity and possessing an amino acid sequence described in Sequence No. ~~1~~ 2 in which one or more amino acids are substituted, added, deleted, inverted, or inserted.

4. A DNA molecule as defined in any one of Claims ~~1~~ 1 ~~through 3~~ 2 or 3, further comprising a nucleotide sequence for regulating expression of a gene.

5. A recombinant DNA containing the DNA molecule of ~~any one of Claims 1 through 4~~ Claim 1 2.

6. A transformed microorganism harboring the recombinant DNA of Claim 5.

7. A method for producing alkaline liquefying α-amylase, comprising culturing the transformed microorganism of Claim 6 and isolating the alkaline liquefying α-amylase produced by the microorganism.

8. ~~A~~ DNA molecule which hybridizes to a DNA sequence which is complementary to the nucleic acid sequence of SEQ ID No. ~~2~~ 12.

9. A protein encoded by the ~~DNA~~ molecule of ~~Claims 1 through 4~~ Claim 1 2.

10. A DNA molecule which hybridizes to a DNA sequence which is complementary to the nucleic acid sequence of SEQ ID No. 2, wherein said DNA molecule encodes a protein having alkaline

liquefying α-amylase activity.

11. A protein encoded by the DNA molecule of Claim 10.

12. The recombinant DNA plasmid pAML100.

13. The recombinant *E. coli* strain HB101(pAML100).

ADD A'

add F3

add E2

Add. C1

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